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REPORT OF THE FINALISING COMMITTEE
WITH THE REPORT OF THE
HINDUSTANI SHORTHAND &
HINDI TYPEWRITER
STANDARDISATION
COMMITTEE.



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PARLIAMENT SECRETARIAT
NEW DELHI.

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COMMITTEE.



PARLIAMENT SECRETARAT
NEW DELHI

Dated 8th Feb., 1951.

To

THE HON'BLE SHRI G. V. MAVALANKAR,
SPEAKER, PARLIAMENT OF INDIA,
NEW DELHI.

DEAR SHRI SPEAKER,

I have the pleasure of presenting to you the report of the Committee appointed by you to finalise the report of the Hindustani Shorthand and the Typewriter Committee, together with the said report as finalised.

It was not possible for the Committee to meet immediately as the Chairman had to leave India on a cultural mission to East Africa. Difficulties of other members also came in the way. The Committee regrets this delay.

We met on the 16th and subsequent days of December 1950 and again on 6th and 7th of February, 1951 and finished our work. The main report of the Standardisation Committee is appended herewith.

Since Hindi is declared as our official language, and its role in various spheres is becoming increasingly important, there have been many and earnest enquiries for a Standard key-board. Its absence is causing innumerable difficulties. To-day a typist accustomed to typing on a particular make, has to unlearn what he has learnt when he has to use a typewriter of another make.

It is necessary, therefore, to release the report as early as possible ; and make the standard key-board (with slight variations according to the number of keys used from 42 to 46) as recommended by this Committee, available to manufacturers of type-writers. We need hardly add that manufacturers will be encouraged to utilise this key-board only if they are assured of the recognition and approval of it by the Union Government. We hope that necessary steps will be taken, therefore, to secure the same.

I thank you, Shri Speaker, on behalf of my colleagues and myself for giving us this opportunity of service.

Yours sincerely,
Kaka Kalelkar,
Chairman.

REPORT OF THE FINALISING COMMITTEE OF THE HINDUSTANI SHORTHAND AND HINDI TYPEWRITER STANDARDISATION COMMITTEE.

The Committee for finalising the report of the Hindustani Shorthand and Hindi Type-writer Standardisation Committee met at 20 Akbar Road, New Delhi first, from the 16th to 20th December 1950 and second time at the same place on the 6th and 7th February, 1951.

The following were present :—

(for the First meeting from 16th to 20th December 1950)

1. Shri Kaka Saheb Kalelkar—*Chairman*;
2. Shri M. Satyanarayana—*Member*;

Shri Bisheshwar Nath was in attendance on the 16th only.

(for the Second meeting on the 6th and 7th February 1951)

1. Shri Kaka Saheb Kalelkar—*Chairman* ;
2. Shri M. Satyanarayana—*Member* ;
3. Dr. Babu Ram Saksena—*Member* ;

Shri Murlidhar Sabnis the Technical Adviser was present from the 5th to 10th February 1951 and was in attendance for the meeting of the Committee on the 6th and 7th February on special invitation of the Chairman.

The Committee went through the report on Shorthand and Type-writing of the H. S. H. T. Committee. It has nothing to add to the recommendation made in the main report regarding Short-hand. Four systems of Shorthand have been recommended. We would urge that a Board be appointed as recommended in our main report (Page 31 as early as possible, for (i) further study and research of the Shorthand systems leading to the evolution of an ideal system of Shorthand. The same Board may also be asked (ii) to test the proficiency of candidates of Shorthand and issue certificates and diplomas.

As regards Typewriter the Committee examined the only report it had received in respect of tests made on the proto-type of standard Key-board of the Standardisation Committee and

confirmed the utility of the Key-board as recommended by the H. S. H. T. Committee after incorporating the following minor changes—

- (1) The letter (YNA) य in the top row should be replaced by a visarg (:).
- (2) The letter (NG) ङ should be dropped and its place be given to ञ .
- (3) The place thus vacated by ङ should be given to ण .
- (4) The place of ण should be given to half (Sha) ष .
- (5) and that of half ष be given to half ष Ksh.
- (6) the full and half letters ऋ ॠ and ॡ ॢ should exchange their keys.
- (7) In a Keyboard of 45 keys the place on the last key of the top row which was occupied by visarg (:) should be given to slanting dash (/).

All these changes have been incorporated in the Key-board given with the report. (Appendix C₁ D₁.)

We examined two types of machines shown to us by the following Companies :—

- (1) Hermes—Volkart Bros. Bombay ;
- (2) Smith Corona—Smith Corona Agency, New Delhi.

This examination showed that the difficulties connected with the dead keys could be satisfactorily solved.

In Nagri typewriters some vowel-marks are written on the top of the letters while some are written below them. This necessitates the use of the dead Keys. A difficulty arises because the ' Matras ' on the dead Keys have got to be typed first and then the letters, to which the Matras belong. This is *abnormal*. In ordinary writing the letter is written first and its Matra is written afterwards.

Efforts have been made for a long time by various people to *normalise* this process. Various devices have been tried, for instance, guiding the type to a different position through a slit specially provided for.

None of these devices were however found to be satisfactory. Shri Ajit Singh, about whom mention was made

in the main report, had shown to the H. S. H. T. Committee an improvised model with two devices.

- (1) The first secured the normalisation of the typing of the dead keys.
- (2) The other was an ingenious device of separating the 'Pai' (the vertical line) of nearly 22 Nagri Pai-wala letters.

With this device a half-letter before it is struck on the ribbon takes a 'Pai' which is kept in attendance and prints a whole letter. The 'Pai' is withdrawn by a lever when it is not wanted. We were struck by the ingenuity and utility of this device but were not sure whether the device would work and whether the mechanism could stand the heavy pressure of typing.

The Hermes machine of Volkart Bros. showed this device of presenting and withdrawing the 'Pai' at will, in its mechanical setting. We are led to believe that this device is likely to succeed. We must therefore congratulate the patent-holder of this device.

As to the normalising of the typing of the dead keys Hermes has succeeded, but by bringing all the dead keys in the centre of the key-basket. Although it is easy to remember the position of the dead keys when they are brought in the centre, we could not accept this improvement because it would retard the speed of typing. The dead keys must occupy the places to which they are entitled, according to the scientific principle of 'order of frequency'.

Smith-Corona machine could keep the dead keys wherever we wanted them. It is said that this device for normalising typing was not a new invention. French and other languages, which have to use certain diacritical marks, required the use of dead keys and they were normalised long ago.

Another advantage which the Smith-Corona model showed was that the carrier is driven forward in two instalments by the use of the space bar. You press the space bar and the carrier is driven forward half a unit. You release the space bar and the carrier finishes the other half unit. This device is useful for printing diphthongs like æ. This device will be of great use to us when we accept the new mode of writing the 'Matras' after their letters and not on or below them, as is the practice today.

We recognise that the efforts of manufacturers of Hermes and Smith Corona machines have been in the right direction and hope that they will pursue their efforts to perfect these devices.

The Hermes machine has tried to mechanically perfect the independent striking of 'Pai' (Vertical line) providing a key for this. This 'Pai' normally is used as a part of full letter consisting of a vertical line. For the purpose of typing a half letter two releasers are provided on either side of the space bar (which is shortened to make room for them). The vertical line goes out of action whenever a releaser is pressed.

This device of providing a common 'Pai' for 22 letters is full of many potentialities. Some additional letters, signs and conjunct consonants could be provided for on the Keyboard if this device succeeds. But we must remember here that since the spread of literacy is a major national programme, the tendency of practical reformers always is to discard irregular and complicated conjunct consonants.

The 'Pai' device no doubt liberates space on many keys. This could be utilised by making the machine satisfy the needs of both the script-reformers and the orthodox group. We are not in favour of perpetuating irregular or complicated conjunct-consonants that have been always a handicap in learning the Nagri script.

We should suggest here a few lines along which further research and improvements could be made.

Composing and printing could be greatly facilitated and the cost of printing considerably reduced if the 'Matras' (the Vowel-signs) come after the letters and not above or below them. This reform will do away with the necessity of dead-keys on the typewriter.

But these 'Matras' that are appended to the letters would look very inartistic if they are given a full unit of space on the typewriter. Half unit or perhaps less than half is enough for the 'Matras'. Mechanical devices must be perfected by which each letter and matra (vowel-sign) will carry with it its own appropriate space, as in the case of the printing press where all types are not of the same width.

In the end we should like to repeat our suggestions that a *Board for Hindustani Shorthand* should be appointed as early as possible. Accurate reporting of the speeches both in the Parliament and in the State Assemblies makes it imperative that our shorthand systems should be considerably improved and an adequate number of Stenographers trained and examined as early as possible.

Our second suggestion is that the Hindi Key-board should be submitted to the Government and its approval secured so that manufacturers may be ready to manufacture and supply Hindi Typewriters with the standard Key-board as early as possible.

Thirdly, the telegraphic code given on pages 38 to 41 may be sent to the telegraphic department. They are, it is learnt, making experiments in Hindi telegraphic code.

NEW DELHI ;
7th February, 1951.

काका कालेलकर
(KAKA KALELKAR)
M. SATYANARAYANA
BABU RAM SAKSENA

REPORT OF THE HINDUSTANI SHORTHAND AND
HINDI TYPEWRITER STANDARDISATION
COMMITTEE

CONSTITUENT ASSEMBLY OF INDIA

(H. S. & H. T. Committee)

COUNCIL HOUSE,

New Delhi, the 17th January, 1949.

To

THE HON'BLE DR. RAJENDRA PRASAD,

President, Constituent Assembly,

New Delhi.

DEAR SHRI PRESIDENT.

I have the honour to present to you the report of the Committee appointed by you to recommend a keyboard for a Standard Hindi Typewriter and to suggest the best system for Hindustani Shorthand. The Committee was expected to submit its report by the end of October, 1948. It could not do so for various reasons. One was that during its discussions, it was proposed to us by the Devanagari Script Reform Committee appointed by the Government of U. P. that we should have joint discussions with them, so that, if possible, agreed recommendations could be made as regards the reforms of the Devanagari script which were to be incorporated in the keyboard. Our Committee, from its very outset was feeling the need for some necessary minimum changes in the Devanagari script. It, therefore, welcomed the suggestion of a joint session and, with your approval, arranged a joint sitting with that Committee. This could be possible only at the end of November, 1948, the delay so caused is, I feel, compensated for by the extent of agreement reached between the two Committees.

This report does not include any recommendations regarding the Hindi Teleprinter, though you had been pleased to allow the Committee to make recommendations on it as well. The Committee busied itself with the two main things assigned to it by you *viz.*: the keyboard for the Hindi Typewriter and the suggestions regarding the best Hindustani Shorthand system, because both these matters required an early decision on the part of the Government

We are also sending herewith, a Telegraphic Code for the Nagari script which may be used for all the Indian languages if they care to use the Nagari script. It can, without any difficulty, be modified to suit the Southern languages also. I must note here that the Committee took up this item at the fag end of its work, and therefore, the system of Telegraphic Code submitted herewith could not be fully discussed. It is signed by three of us. We submit it herewith simply because we think it will be useful to the Telegraphic department at least as a starting point.

The keyboard suggested has been prepared after a careful study, but it needs to be tested practically by taking trials on machines with this keyboard*. We could get such machines prepared with the help of certain private concerns that assemble or repair the present day typewriters. But that would amount to divulging the keyboard to one firm in advance. We, therefore, recommend that the Government take up the work of getting a few trial machines prepared on its own account. Some member of this Committee could, if necessary, cooperate with the Government in this task.

I also suggest that a patent of the Standard Keyboard recommended by us should be secured by the Government of India, and the use of the keyboard should be permitted only after the payment of a reasonable royalty to the Government. This arrangement is not supposed to bring any general revenues to the Government. The idea is that the amount may well be utilised in further research work relating to Hindustani Shorthand, Typewriters, Teleprinters and Telegraphic Code.

I must note here my gratitude for the uniform courtesy of the members of the Committee with whom I had the privilege of working and their generosity in putting up with my shortcomings.

Shri Balkrishna, the Secretary of our Committee also deserves our Special thanks for his arduous work and active co-operation.

I must also thank you, Shri President, on behalf of my colleagues and myself for giving us this opportunity of service.

NEW DELHI,

The 17th January, 1949.

Yours sincerely,

KAKA KALELKAR,

Chairman of the Committee.

*This was done subsequently with the request of the Finishing Committee.

The Committee

The Committee, whose report we have the honour to present, came into existence as a result of a proposal made by the Hon'ble Dr. Rajendra Prasad, President, Constituent Assembly of India to the Hon'ble Pandit Jawahar Lal Nehru, the Prime Minister of India. In a letter addressed to the Prime Minister in April, 1948, Dr. Rajendra Prasad suggested that "a Committee of experts should be appointed to find out and recommend to the Government the most efficient system of Shorthand and the best arrangement of the keys of the Typewriter". He expressed in the same letter his intention to appoint such a Committee on behalf of the Constituent Assembly of India unless the Government preferred to appoint one itself. Pt. Jawahar Lal Nehru in his reply dated 11th April, 1948, expressed his agreement with this proposal and added "I think that you might appoint a Committee on behalf of the Constituent Assembly of India."

The Hon'ble President, therefore, appointed a Committee nominating the following to act on it:

1. Shri Kaka Saheb Kalelkar,
Vice President, Hindustani Prachar Sabha,
Wardha—(Chairman).
2. Shri M. Satya Narayan,
Secretary,
Dakshina Bharat Hindustani Prachar Sabha,
Thyagaray-Nagar, Madras.
3. Shri Kripa Nath Mishra,
Professor, Patna Science College,
Patna.
4. Acharya Shri Sriman Narayan Aggarwal,
Principal, Govind Ram Seksaria Commerce College,
Wardha.
5. Dr. Babu Ram Saksena,
Principal, Kayastha Pathshala University College,
Allahabad.
6. Bhadant Anand Kausalyayan,
Secretary, Rashtra Bhasha Prachar Samiti
Wardha.

with Professor Balkrishna as its Secretary

The following were the terms of reference :—

“There are several systems of Hindustani (Hindi and Urdu) Shorthand which are being used in India at present. The use of Hindustani is growing and is bound to grow even more in the near future. Difficulty is experienced in finding shorthand writers in Hindustani for offices and newspaper reporters. Employers do not find it easy to judge between different systems.

“The use of Hindustani is however hampered very largely on account of the absence of a suitable typewriter with the necessary speed and other conveniences. Various manufacturers of typewriters have got their own separate arrangement of keys, so that if one learns typewriting on one Hindi Typewriter one cannot easily change over to another machine.

“It is therefore necessary to have an authoritative opinion about the suitability of a system of Shorthand and about the best arrangement of keys of a Hindi Typewriter which will give the greatest speed with the least labour.

“A Committee consisting of the following persons is appointed to report on the most suitable system of Hindustani Shorthand and to recommend changes which may be considered necessary in any existing system.

“The Committee will also report about the most efficient arrangement of keys for a Hindi Typewriter which will ensure reproduction of all sounds in use, and will give the best speed with the least possible labour and will be the best from the point of view of weight, durability, portability and cost.

“The Committee may consult and examine experts and manufacturers’ representatives and is expected to report as soon as possible.”

In reply to the Chairman’s enquiry the Committee was subsequently informed by Hon’ble the President that these terms covered “Teleprinting and Reform of Script”.

The Committee had thus before it the following three purposes :

- (i) The examination of the existing Hindustani Shorthand systems with a view to find which of these, if any, could prove useful for Government purposes and business offices.
- (ii) The selection of the sounds of the Indian languages which must be represented in the keyboard of the

Hindi Typewriter and preparation of a sketch of the keyboard which would most efficiently meet, in their opinion, the needs of the Hindustani language.

- (iii) The consideration how the Devanagari script could be fitted to the Teleprinter and the Typewriters and the preparation of a chart of the keyboard for the Indian Teleprinter.

The Committee had also, incidentally, to formulate the best possible telegraphic code based on the Devanagari script.

The Importance of its Task

Before we proceed to state the method adopted by us to carry on our investigations we consider it necessary to state briefly the significance of the problems the Committee had been entrusted with.

It is well known that August 15, 1947 opened out the era of reconstruction of the economic and cultural life of the people of this ancient land. This reconstruction was long overdue.

One of the lines on which this reconstruction is to proceed is the gradual replacement of English as the State, University and Business language of this country by a language or languages which the masses understand and speak.

Mahatma Gandhi had perceived long ago the necessity of such a change. He had urged that Hindi or Hindustani alone could take the place of English as the State and national language since it could be understood by the people all over the Country. Whatever be the controversies of the day on the question, it cannot be disputed that Hindi or Hindustani is spoken and understood by the largest number of the Indian people. Moreover it is also true that Hindi or Hindustani occupies even today the position of an inter-provincial language for those people who do not speak English.

It is in the context of this increasing importance of Hindi or Hindustani that the two problems of devising Hindi Typewriters and Teleprinters and a suitable system of Hindustani Shorthand have come to possess a special significance in the scheme of our reconstruction.

Towards the close of the last century a group of political leader began to approach the masses for educating them

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Towards the close of the last century a group of political leader began to approach the masses for educating them

and getting their support for the Freedom Movement. The Government could not afford to remain unacquainted with what these leaders were talking to the masses. It had to get reports of their speeches and reports taken down in longhand were not satisfactory. The Rulers, therefore, began to encourage the adaptation of English Shorthand system to the needs of Hindustani. The Police reporters who made this adaptation had neither the training nor the incentive to carry on systematic and scientific work for the evolving of an efficient system of Shorthand for any Indian language. It was not paying, therefore, to try to evolve a system of Shorthand system of their own in the opening decade of this century and people found that their labours had gone to waste.

But the situation began to change soon after Gandhiji came at the helm of affairs of the Indian National Congress. He was the first great political leader who declared that Hindi or Hindustani alone could be the national language of India. With him it did not remain a mere declaration, he put it in actual practice. He himself used Hindi or Hindustani to address the classes and masses of this country. He tried to make Hindi or Hindustani the official language of the Indian National Congress. His precept and practice gave it a new dignity in the eyes of the people even though the Government continued to neglect it. It began to be used by thousands of public speakers. Consequently the Government, the various Parties and the Press began to realise the necessity of a suitable system of Hindustani Shorthand. It may not be known to many people that Mahatma Gandhi was keenly interested in the development of such a system.

Under this impulse a number of Shorthand systems based on Pictorial were formulated. We propose to give a detailed analysis of these in this report. For the present we need only point out that the question of the formulation of an efficient system of Hindustani Shorthand continued to grow in importance with the progressive growth of this national and democratic movement. Our people began to realise its importance for keeping records of political statements, speeches and discussions. But even then there was no appreciable demand for Hindustani stenographers. They were not needed in the daily routine of offices—whether governmental or private. The Government, moreover, made no arrangement for the training of Hindustani stenographers. Universities and Colleges did not include it in the curriculum. It was supported and sustained only by the national sentiment.

and by such non-official institutions as worked for the replacement of English by Hindi or Hindustani as the State language of the country. In 1937 an All India Conference was held at Wardha to consider how a short-hand system for Hindi could be evolved. We then find the Nagari Pracharni Sabha and the Hindi Sahitya Sammelan providing arrangements for the teaching of Hindi Shorthand. But this was slender nourishment. Consequently not much progress was made by these systems.

The story of the invention of a Hindi Typewriter is not very different. There was no thought of it so long as the national movement had not gathered momentum. But when the National Congress adopted Hindi as its language, national-minded people began to think of Hindi Typewriters. Bachraj & Co. were the pioneers in the matter of placing on the market a Hindi Typewriter the keyboard of which had been designed by Shri Atre. This Nagri Typewriter, however, could not make much headway precisely for the same reasons for which Hindustani Shorthand systems could not flourish. There was no demand for it in the Government offices, and very little in private business offices. But like the Shorthand systems, it was a child of Indian Nationalism—a child which played a significant part in the critical days of the national revolution.

The Method of Approach

The Committee realised this significance of the task. It, therefore, invited through the press all such institutions and individuals of the country as had given thought to these problems to send their considered suggestions to the Secretary of the Committee.

In its first meeting held on the 27th June, 1948, the Committee, drew up a questionnaire dealing with all the three problems stated above, with a view to enable people to canalise their thoughts in such a way as would enable the Committee to make the best use of them. The questionnaire would be found in *Appendix F* of this report. It was released to the Press in all parts of India. It was also sent to all the Ministries of the Government of India, to the Governments of all the Provinces, to all the Universities of India and to such selected individuals as, in the opinion of the Committee, could help it with the expression of their opinion on the questions raised.

At the request of the Committee, the President made available the honorary services of Shri Murlidhar Sabnis a teacher of Shorthand and Typewriting trained in Wardha as a Technical Adviser.

The Committee, in the second place collected all the published data dealing with Hindustani Shorthand systems and Hindi Typewriters. Shri Murlidhar Sabnis, was asked by the Committee to go through all this mass of data and submit his notes. Of course the Committee did not leave this study entirely to Shri Sabnis alone. The Committee divided itself into Sub-Committees—one consisting of the Chairman, Shri Kaka Saheb Kalelkar, Dr. Balu Ram Kulkarna and Shri Kripa Nath Misra to study the problems relating to the Hindi Typewriter and the second consisting of the Chairman Shri Kaka Saheb Kalelkar, Shri Satya Narayan, Bhadant Anand Kaushalyayan to study the problems connected with Hindustani Shorthand. Shri Sriman Narayan Agarwal was invited to join the second Sub-Committee subsequently. Each of the Sub-Committees with the Secretary Prof. Bakrishna went through the mass of the data that had been gathered in order to submit its recommendations to the Committee. Thus the Committee had an opportunity of giving an adequate consideration to both the problems.

But the Committee felt that a mere examination of the data would not by itself be a sound foundation on which its recommendations could rest. It, therefore, decided in the third place to test the efficacy of each shorthand system by means of a practical demonstration, held under the directions and supervision of the Committee, by the representatives of each of the existing Hindustani Shorthand systems. The Committee further discussed with the authors of Hindustani Shorthand systems irrespective of the consideration whether the system was old or newly devised, the relative significance of the devices employed by them.

The same attempt to collect data by practical experiments was made in relation to the Hindi Typewriters.

The Committee further analysed the nature of the Indian languages from the viewpoint of their phonetic arrangement and grammatical structure. It was found that it would be possible to have a Shorthand system which could be used with minor modifications for all the regional languages of India. It was evident to the Committee that in any future administrative system of India each Provincial Government or State would have to use two languages, one the national language of India and the other its own regional language. In such circumstances it would be desirable to have a system of Shorthand for the national language which could be used with a few necessary modifications for each of the regional languages as well. The

same consideration applied to the Hindi Typewriter also. Moreover it was evident that no system of Shorthand nor any typewriter could be said to be useful which was not in harmony with the linguistic peculiarities of Hindustani. It was, therefore, essential for the Committee to examine the structure of Hindustani before formulating its recommendations.

Finally, the Committee always kept before its view the love of the Indian people for their Devanagari script. Devanagari is very near to perfection in so far as the arrangement and classification of its sounds are concerned. But the Committee also felt that the characters of Devanagari and specially its system of vowel marks was not suited to such modern machines as Typewriters, Teleprinter and Linotype. The Committee thought that it should investigate this problem in detail. It was with this view that the Committee held a joint meeting with the Devanagari Script Reform Committee which had been appointed by the Government of the United Provinces. It was felt that if the two Committees could make agreed recommendations it would be easy to secure popular acceptance of the reforms proposed to be effected in the Devanagari script.

The Committee have thus made an effort, within the time and means at their disposal, to tackle the problems under investigation with as great an objectivity as could possibly be secured. It is true that it could not undertake certain tests which, though necessary, required considerable time to be undertaken and completed. But it is the belief of the Committee that even if it had been possible to make these experiments the conclusions would not have differed materially.

1. The Committee assembled at Delhi for its first meeting on the 27th June, 1948. This meeting was devoted to the consideration and analysis of the terms of reference. The Committee also prepared a questionnaire for being issued to the public and for being circulated among the Ministries of Central and Provincial Governments and among such other public bodies as may have interest in the matter.

2. The Committee again reassembled on the 16th August, 1948 and continued to meet daily both in the morning and the afternoon up to the 19th. In this meeting it undertook the analysis of the suggestions received. Most of the time was devoted to the analysis of the suggested keyboards of the Hindi Typewriter. The Committee, however, had to

adjourn on the 19th after dividing itself into two Sub-Committees—one for Shorthand and the other for Typewriter, each one of which was directed to study the material further and to submit its suggestions.

3. The Shorthand Sub-Committee met on the 23rd September, 1948 and continued to meet up to the 28th. It decided to hold a practical test of the speed that could be reached by the best student of each existing Hindustani Shorthand system. It also discussed at length the speed devices which the Hindustani Shorthand systems should have.

4. The Committee as also the two Sub-Committees re-assembled on the 25th October, 1948, and sittings continued up to the 30th. The Committee held the test on the 26th as had been previously arranged. The report of the examiners and the results are given in *Appendix E* of this report. On behalf of the Committee, the test was supervised by Shri Anand Kaushalyayan assisted by Shri Krishna Murty, Stenographer. The Committee then invited each representative of the inventors of existing Shorthand systems to discuss the relative merits of their systems. This discussion continued up to the 28th October.

5. The Committee adjourned on the 30th to reassemble on the 8th November, 1948, to finalise its recommendations after having had joint discussions with the Devanagari Script Reform Committee of the United Provinces Government. But the joint meeting could not take place as had been proposed and the Secretary and the Chairman of the latter Committee who attended the meeting of our Committee desired that before this Committee finalised its recommendations, it should have a joint meeting at Lucknow with their Committee on 30th November and 1st December, 1948.

6. The Committee met at Lucknow as arranged. It reassembled on the 3rd December, 1948 at Delhi and formulated its views.

The Committee here records its appreciation of the willing and able assistance given by its technical adviser Shri Murlidhar Sabnis.

The Committee would like to record its thanks for all those who responded to its invitation and helped it to complete its labour. In particular the Committee would like to express its appreciation for the help rendered by the Secretary and his staff, interviewers, inventors of the various systems and those who have responded to the questionnaire.

Section I—Shorthand Systems

PART I

Object of Shorthand Writing

The object of Shorthand writing is to devise a script which will record human voice sufficiently effectively, with accuracy and speed. The target and limitation being the speed with which a man can speak out his thoughts for the benefit of others. The ideal script, therefore, would perhaps be an enlargement of the line scratched on the gramophone plate which records not only the articulate sounds of man in any language but also records and reproduces the individual pitch and timbre almost to perfection. But man has neither devised a method of tracing this script with the hand nor of reading it with the eye. Reporting of speeches, which is our main concern, does not need a script of such perfection. Future generations may, however, devise a script on the basis of the gramophone records, and if a script of this nature could be read with ease, there would be no necessity of transcription in long hand. In fact the gramophone script would be the universal script for all human tongues. It may perhaps replace the modern musical notations also.

Man has, however, proceeded in quite a different direction. He analysed his articulate voice into vowels and consonants, and gave each of them an arbitrary sign. These put together became his script. So long as recording of human voice was an occupation of leisure, speed in writing was not a necessary element of any script.

The Chinese, on the other hand, did not pursue the problem on the basis of sound. They analysed language into its component ideas and gave a sign to each. We have done the same thing in the matter of our numerals and mathematical and other signs. The letters of the alphabet k, p, t, etc. represent particular sounds and they are not expected to convey any meaning apart from the sound they represent. Whereas +, ∴, ∵, ×, !, ?, etc., convey definite ideas and they are not expected to convey any definite sound. In fact they represent different words in different languages. And yet they conform to a definite meaning ∴, +, ×, 1, 2, 3, 0, these signs are understood universally but they are vocalised differently in different languages.

अंक and लिपि therefore, are two separate distinct approaches to the problem of language recording. (We have dwelt on this point at some length because it has a bearing on an important suggestion of ours for evolving an ideal system of Shorthand for Hindustani).

the laughing stock everywhere and people are never tired of repeating the celebrated sentence क क अ ज न र ग य. But it must be conceded to the credit of the mercantile or Mudia script that although they drop the vowels sign, there has never been any dispute of interpretation when their books are submitted in any case before a court of law.

With the advent of Democracy, discussions of public affairs became all important in human life, and recording of speeches and addresses has become an imperative necessity. The Parliament is the official gathering place of those who talk. The pulpit and the platform are the places where power is built and destinies of nations controlled.

Reporting of speeches, therefore, has become a necessary art and shorthand writing an accomplishment universally prized. The old devices of discarding the vowel signs, the *ghaseet* (घसीट) of Urdu and the phraseograms of Modi won't suffice. We must use the elementary geometrical figures for quick writing, and use the standard devices of putting vowels and consonants together.

Brief Historical Survey

As referred to above Indian business offices have been using for centuries a kind of Shorthand in their business correspondence. It is the Muriya form of writing. It effects a saving of time and an increase in speed by simplifying the forms of the Nagari letters, by omitting to put the head line which those letters usually carry, as also by dropping the vowel marks (*matras*). This form of writing, however was in use in no other sphere of life. The Government offices during the Muslim rule in India used the Urdu script, while under the British rule English language with its Roman script was used in the offices. The question of the use of Muriya by the Government did not therefore arise at all. They started with the Pitman system.

It is interesting to note that the system of English Shorthand that came to be used in the offices of the Indian Government had been formulated by Sir Isaac Pitman who seems to have been influenced by the Indian phonetic method of writing. Sir Isaac was influenced by the phonetic arrangement of the Devanagari letters.

The result of the superiority of the English system of Shorthand was that when need began to be felt of the formulation of a Hindustani Shorthand no one thought of adopting

Rae Bareilly (Avadh); Shri Jagdish Chandra, Polytechnic Head Commerce Teacher, Etawah; Shri Kameshwar, Court, Bhagalpur; Shri Adhar Singh, Sitapur; K. S. Rao, Principal, Prof. B. M. Kale, A. S. They sent his complete system; they sent only a few sketches to represent the Hindi system even to do that, even the opportunity to do so. It is the problem should be many people.

Material submitted to the

The development of material submitted to This may be classified as follows:

- (a) Printed Books
- (b) Manuscripts
- (c) Letters which the system of Shri Rishi Lal Agarwal
- (d) Letters mentioning Hindustani system recommended
- (e) Letters received in English of the 11

Of these (a) and (c) are the most important.

- (i) Books and system of English
- (ii) Books and system of Hindi
- (iii) Books and system of Marathi

A detailed analysis of

int. On the contrary the system is as the basis.

The material at our disposal has been taken for the formulation of the system. It is said that some forty years ago the provinces having realised the importance of the speeches of the officers of the speeches of the officers, directed the Christian Mission to train Police Reporters in a system of English Short-hand. The initial base on which the different structures of the system. It does not appear, however, that immediately realised the importance of the Pitman system to which is almost entirely clear, sound structure, phrases and school seem to have learnt the difficulties that arose. Thus it continued to be modified for the system encountered. It is for this reason that many systematically formulated and except one of Urdu and this period of experiment and

our opinion came to a close and the system began.

It is that Shri Nishkameshwar Shri Poonam Chand Jain and that their systems were perfect. Shri Nishkameshwar Misra was the first to do it in 1920. Shri Radhe Lakshar Prakash in 1926. Shri Rishi Lal Agarwal in 1931. Of those who have done it—Shri Rishi Lal Agarwal in 1938 and Shri S. P.

Samiti of Wardha convened for evolving a suitable short-hand language. In this Conference at Bombay, Shri Dabke took part to modify the Pitman's Shorthand system. Shri Dabke counted the varieties of Marathi literature and the variety of the sounds used in

that language. Then accepting the repertory of Pitman's signs, he assigned the simplest and easiest signs to the most frequent sounds.

When he came to stay at Wardha Shri Dabke counted the frequency of the sounds in Hindustani and modified his system to suit the needs of the national language. He had not proceeded far when his life was cut short under tragic circumstances.

Shri Murlidhar Sabnis, who took his lessons from Dabke, took up this work and has gradually evolved a system which, he has called Wardha Pranali, a system based mainly on the same principle of frequency.

The evolution of an Indian system of Short-hand was considerably accelerated after the establishment of national government at the Centre in the year 1946. Those who had already formulated their systems began to teach them with greater hope and enthusiasm. Others began to think of having new systems of their own. We find that during the space of two years a number of other systems have been published. We thus, find that Rashtriya Hindi Shorthand of Shri Sidhoswar Nath was published in 1947. The same year we find Mahesh Chandra Gupta publishing his Gupta Pranali and Shri Kedar Nath Choubey his Ashu Lipi. Apart from the systems that have been published there are others which have been completed and may be published later. The following systems, *viz.* 'Gajanan Pranali' by Shri Gaj Singh, Jodhpur; 'Hindustani Shorthand' by Shri Ram Prasad, Gaya; 'Sarva Bhasha Sanket Lipi' by Shri J. K. Tandon and Shri P. S. Mehra of Ajmer; 'Hindi Sanket Lipi' by Shri Vishnu Datt Uniyal of Almora; 'Rita Lipi' by Shri Sarat Chandra Dhanger, Sagar, C. P.; 'Hindi Ashu Lipi' by Shri N. D. Khanna of Lucknow; 'Hindi Shigra Lekhan' by Shri H. P. Moholkar, Teacher Hindi and Marathi Shorthand, Padhey's Institute, Bombay; 'Nigam Pranali' by Shri M. S. Nigam, Delhi; 'Hindi Shorthand' by Shri Mathura Prasad, Vice-Principal, Commercial Institute, Muzaffarpur; 'Sharma Lipi' by Shri G. M. Gokhale and 'Shri Sahasrabudhe Shuksham Lipi' by Prof. N. S. Nigam, Kanpore, have been submitted to us for consideration. There are some persons who claim to have formulated their own systems of shorthand such as Shri E. W. Lall, St. John's College, Agra; Shri K. N. Verma, Commercial Service Jatiwara, Delhi; Shri Dharam Prakash, Bharat Type writing School, Gwalior; Shri Brij Krishna Bhatnagar of Motihari Commercial Institute, Delhi; Shri Saroj Ghosh, All Language Shorthand, Accountancy Training Centre, Calcutta. Shri V. S. Bendrey, Poona; Shri Baboo Singh, P. S. I.,

consonants and languages. A would involve these languages country are a multilingual of almost all. The grammar has certain in suffixes used. Consequently these prefixes further advancement culture is the are almost all us to prepare common to it is possible nation of according to if we felt that should be

A third systems in that the practical d. A test was and the report.

A fourth lity of a Hindustani respects. It is different from phonetic systems (Mun provided in of special system language was

This, however, difference that. The important change in and number vowel on the

. G. Subramanie Iyer, Tanjore; Shri ic, Delhi; Shri D. N. P. Shrivastava, Sanatan Dharma Inter College, Prasad Sarishtedar, Distt. Judge L. S. S. Iyer, Dindigul ; Shri Ramari H. V. Parekh, Calcutta ; Shri ght College of Commerce, Mysore; P. T. Poona Camp. But none of system to the Committee. Some of ies of the symbols adopted by them in sounds while the others did not though they were given ample opportunity, a matter of satisfaction that giving this much attention from so

Committee

have traced above is reflected in the Committee for its consideration. follows :

tain some sketchy proposal about and rules to be used in the Hindustani,

suggesting which of the present shorthand systems should be recommended by the Committee as a standard system, adding that one or the other of the systems should be adopted as the basis of the Hindustani Shorthand system.

Printed Books and Manuscripts : may be divided into:

1. Manuscripts based on the Pitman system of shorthand,

2. Manuscripts based on the Sloan-Duployan system of English Shorthand,

3. Manuscripts which contain a Hindustani shorthand system entirely original in character.

Of these is given in *Appendix 4*.

PART II

Before we proceed to make our recommendations about the system or systems that deserve recognition by the State it seems necessary to state the considerations that have guided us in arriving at our conclusions in this respect. The first consideration that has weighed with us is the historic fact that in India of today the Pitman system of Shorthand holds almost univalled sway. The stenographers working in Government offices, Press and Business Houses are almost all the followers of the Pitman system. This system came to have this position on account of the patronage of the Britishers. This link with the recent past cannot be broken without dislocation in the work of offices, whether public or private. It is plain that with the introduction of Hindi or Hindustani as the state language of India the stenographers now in the pay of the Government or private corporations would be required to learn a system of Hindustani Shorthand. These people would naturally find it easier to learn a Hindustani Shorthand system based on Pitman than one which is altogether different. It has, therefore, been felt by us that for the time being we cannot think of altogether ignoring the Pitman system even if we felt that it is not possible to adapt it so well as other systems to the genius of the Hindustani language. It may well be that as time passes and a new generation of stenographers trained on new systems grows up the Pitman system or its Hindustani adaptations may be displaced.

Moreover during the period of transition the stenographers working in offices would be required to know both the English and Hindustani systems of Shorthand, and this again makes it difficult to discard the Pitman system immediately.

The second consideration that has weighed with us is the multilingual character of our country. Each of the States of the Indian Union would like to make the regional language its official language. At the same time each State would have to use the federal language also in its offices. Thus there would be the necessity of stenographers who know the Shorthand of the regional language as also that of the federal language. This implies that the Hindustani Shorthand should be such as can be easily adapted to the genius of the regional languages. We are aware that there are several difficulties which have to be overcome if this desideratum is to be realised. The frequency of sounds, for example, varies from language to language spoken in our country. Consequently it is not easy to allocate the same symbols for the same

r
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 ur
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 ick
 che

derived from the same root indicating qualified meaning are brought out by changes in a vowel or two with or without an addition of a consonant. Apart from this role of the vowels it may be emphasised that in the Hindustani language the occurrence of two, three or even four consecutive vowels is found quite often. There may be words which may consist of vowels only. Thus the word *आर्य* consists of only vowels. In the English language such diphthongs are rare. This difference in the role of vowels between the two languages demands that a shorthand system for Hindustani should have an adequate provision for the representation of vowels. Another vital distinction between Hindustani and the English phonetics is the greater frequency of double consonants in the former as compared with that of the latter. Moreover, the frequency of the same sounds in the English and Hindustani languages is considerably different. We find for example a very high frequency of T in the English language whereas in the Hindustani language its frequency is very low.

Finally, the grammatical difference between English and Hindustani is very great. For instance, English has prepositions while Hindustani has post-positions.

The fifth consideration has been the frequency of sounds as the basis of assignment of symbols for those sounds. This consideration becomes all the more important because most of the Hindustani Shorthand systems are based on English Shorthand systems, and the frequency of sounds in Hindustani and English varies considerably.

Finally we have kept in our mind the essential elements of a good shorthand script. A shorthand script cannot be considered to be good unless its symbols are simple in form and can easily and speedily be written. These characteristics are possessed by the geometrical symbols which consist mainly of straight and curved lines and of hooks, loops, circles, ticks, dots, dashes, and small angular marks. But the use of such symbols in any system of Shorthand is not by itself enough. The assignment of these symbols to the different consonants and vowels should be such as to permit the most facile joining of one symbol with another.

These considerations constitute, so to say, our measuring rod. We proceed to indicate now the conclusions we have arrived at on the basis of these considerations.

PART III

Conclusions and Recommendations.

It is clear from the survey that the existing systems are (1) either modifications of Pitman (2) or of Sloan Duployan (3) or Original in character. We find, however, that none of these systems can be said to satisfy all the characteristics of a good Hindustani Shorthand system. We shall briefly give our reasons for this conclusion.

The systems which are either modifications of Pitman or of Sloan Duployan could have made, in our opinion, a better use of the devices and principles suggested or formulated by the English system. We may note certain salient features of those systems in this connection. The systems based on Pitman have all made use of the principles of halving and doubling. But while Pitman makes use of these principles to serve a number of needs of the English language as shown in the survey, these systems have, more or less mechanically followed Pitman in the matter of using these principles for the Hindustani language. Pitman for example adds T or D by means of the principle of halving to the consonant halved. But T or D are not only very frequent sounds in the English words, they are also the usual terminations of the English verbs in the past tense. This latter fact seems to have escaped the attention of those who have attempted to adapt Pitman for the Hindustani language. The authors should have tried to see if this principle could be used for a better purpose than that of adding त् or थ् or द् or ध् sounds which are not so very frequent in Hindustani as the sounds of T or D are in English. We may say that the same remarks apply with respect to the use of the principle of doubling. The author of *Wardha Pranali* has no doubt made an attempt to make a new use of this principle. But it is doubtful if it is the best use of this principle. We believe that the same remarks can be repeated in respect of the use of the vital devices of circles, loops, hooks and position writing.

Those who have sought to adapt the Sloan-Duployan system for Hindustani Shorthand have done no better. It is clear from the survey that these adaptations of the Sloan-Duployan system have made practically no change in the use of the basic principles and devices of the system formulated or suggested for the English language. The symbols for the conjunct consonants, which constitute a special feature of the Sloan-Duployan system, have been kept in Hindustani for the same conjunct consonants. No attempt seems to have been

made to find out whether these conjunct consonants have any corresponding frequency in the Hindustani language or not.

Even the original systems submitted to us do not fulfil our expectations. The Jain system is more or less contracted alphabet only. It has not made any use of the other devices whereby speed could be increased. The most that can be said about it is that it has tried to remain as close as possible to the Deva-nagari script (Indian Phonetic System) in the matter of its symbols. It is not, and we are afraid cannot be, a successful system of Hindustani Shorthand unless it is appreciably improved and introduces speed devices in which case it can serve as a basis of shorthand for all Indian languages.

The Gajanan Lipi is yet in a state of formation. The All languages Shorthand of Tandon and Mehra, in our opinion, has made a notable attempt to use the Shorthand symbols and shorthand principles in an original manner. But it is too early to pronounce any opinion about it because the theory has not been sufficiently practised. Moreover we are afraid that some of the theoretical propositions are so complex that it is doubtful whether these will prove useful in actual practice. Our conclusion that these Hindustani Shorthand systems not being sufficiently adapted to suit the genius of the language is further supported by the results of the test held by us.

The representatives of only four systems managed to take down dictation at high speeds. None of them, however, reached the required standard.

The order in which they succeeded to some extent in the test is as follows:—

1. Hindi Ashu Lipi—by Shri Kedar Nath Choubey.
2. Wardha Pranali—by Shri Murlidhar Sabnis.
3. Nishkam Pranali—by Shri Nishkameshwar Misra.
4. Rishi Pranali—by Shri Rishi Lal Agarwal.

We recognise that this order does not necessarily imply the relative superiority of these systems over one another.

We feel that the results of the test should be viewed in the light of the other characteristics of these systems. We proceed to give them below :—

The Hindi Ashu Lipi by Shri Kedar Nath Choubey is almost a copy of the Sloan-Duployan system. The only important novelty in it is the author's peculiar use of position writing. But we think this use of position writing has very little to do with the genius of the Hindustani language. It is, however, the one system based on the joined-vowel system that did

This contribution, in our opinion, entitles it to greater esteem than what it has secured by means of its position in the test. We feel that it can be considered of equal worth to the Wardha Pranali on account of the original contributions made by it to the system of Hindustani Shorthand.

We arrive at a similar conclusion about the Rishi Pranali. It is a system that appears to be practised by a large number of Hindustani stenographers today. Moreover it is a system that has tried to build up systematically a large number of logograms and phraseograms. It has sought to adjust the Pitman system to the genius of the Hindustani language. In certain respects this system has gone into more details than the others. Thus it seeks to indicate the terminations न, नी, ने and त्र, ती, ते by means of the न and त्र hooks. This appears to us to be quite a feasible use of the hooks to indicate the terminations of Hindustani verbs as also of some nouns. It also makes provision for the joining of initial vowels under certain circumstances.

We thus come to the conclusion that the three systems based on Pitman and the one system based on Sloan Duployan can be considered to have demonstrated their usefulness, however limited it may be, for the Hindustani language. The other systems, in our opinion, in their present form, do not possess even this use.

Recommendation No. 1

According to the terms of reference we were asked 'to report on the most suitable system of Shorthand and to recommend changes which may be considered necessary in any existing system.'

Having examined all the systems that have been submitted to us, both in the theoretical and practical aspects we have been able to select the following four systems for Government recognition :

1. Ashu Lipi.
2. Wardha Pranali.
3. Nishkam Pranali.
4. Rishi Pranali.

Their relative merits have been discussed and evaluated at some length; but we should refrain from mentioning one of these four as the most suitable. They all have potentialities

for growth ~~and achievement~~. All the four that we are recognising have created a field for themselves and it would be much better if all of them are allowed to grow in an atmosphere of healthy emulation.

Recommendation No. 2

We suggest that the Union Government should take steps to set up a Board consisting of scholars of the phonetics and Grammar of Hindustani and other Indian languages as also a few experts in Shorthand. This Board may proceed to examine exhaustively the nature of all Indian languages from the viewpoint of the needs of a Shorthand system. It may help to evolve a system of Shorthand best suited to the official federal language and also, with required modifications, to the several regional languages.

Recommendation No. 3

We recommend that the Board mentioned above should also conduct examinations on an All India basis, for testing students of Hindustani Shorthand and for awarding certificates to the successful candidates. The Certificate of this Board alone should be recognised by the Union and the State Governments. This, in our opinion, would secure uniform standards of teaching and academic and practical proficiency in respect of the shorthand system of the federal language in all parts of the Union.

KAKA KALELKAR,

Chairman.

S. N. AGARWAL.

BABU RAM SAXENA.

M. SATYA NARAYAN.

ANAND KAUSHALYAYAN.

K. N. MISRA.

NEW DELHI :
The 15th January, 1949.

(Subject to a note of dissent)*.

*This note was never submitted.

Section II—Typewriters

PART I

The Statement of the Problem

Before we proceed to give our conclusions regarding the Standard Keyboard for a Hindi Typewriter, it would be desirable to state the problem viz. how to fit the Devanagari script to Typewriters? As it is, the existing typewriters in use in India and elsewhere were designed primarily to serve the needs of the Roman script. Roman and Devanagari, however, differ from each other to such an extent that the machines useful for the former are found of not much use for the latter. In the circumstances we are faced with a dual problem. We can work for the invention of new kinds of Typewriters which without sacrificing the advantages possessed by the present ones, may serve all the needs of the Devanagari script as it is today. We may, in the alternative, try to fit in the Devanagari script, with such changes as may be necessary, to the existing typewriters.

We have decided to adopt the second course for the following reasons :—

In the first place the invention and manufacture of new machines would require a pretty long time for being perfected and put on the market. We contacted some manufacturers for this purpose. We found that none of them could undertake such a work. It would also be evident from the survey of suggestions that we have given in *Appendix B* that practically every one has urged that the existing standard machine should be accepted for the Devanagari Typewriter also. Only Sri Ajit Singh of Patna has shown us a mechanism which when completed can, according to his claim, provide for 108 characters on 42 keys. But we are afraid that we cannot recommend its adoption unless its mechanism has been thoroughly tested from the viewpoint of speed and durability.

Apart from the above consideration we have also been influenced by the fact that the adoption of the second course is likely to save the Government and the country a heavy outlay on the purchase of new Hindi Typewriters. The Government of the Union and the States have today thousands if not laacs, of English Typewriters. Many of them are likely to become superfluous with the introduction of Devanagari as the script of the Union and some of the States. It would be possible to convert these superfluous English typewriters into Devanagari ones if there is no difference in the mechanism

of the two. This would mean the saving of millions of rupees for the Government. The same would be the position with the Business Offices of the country. Moreover the new machines specially invented to suit the genius of the Devanagari script are bound to be costlier as they would have to make provision for a greater number of characters and would also have to provide for a more complicated mechanism. Moreover these machines would have a limited market for no other country except the Indian Union would need them.

PART II

Complexities of the task

Even the adoption of the second course, however, is not easy. In the first place, the number of Nagari letters is fifty-two while the Roman Script has only twenty-six. The designer of a Hindi Typewriter has, therefore, to provide this large number of letters on the limited number of keys in the existing standard typewriter. It may, however, appear at first that this number need not create any complexity because Nagari does not make any distinction between capital and small letters—a distinction as a result of which the designers of the typewriters for the Roman script have also to make provision for 52 letters, 26 Capital and 26 small, on the keyboard. But the fact is that the distinction between capital and small, while it increases the number of characters to be provided on the keyboard does not in reality add much to the complexity of the task, the reason being that the capital letters are in the first place very infrequent and they are placed on the upper shift of the same key on which their corresponding small ones are placed. They are typed with the use of the shift key. This introduces only a slight mechanical complexity and does not put any great strain on the mind of the typist nor does it materially interfere with the speed of the typewriter. But if two different letters, each one of which occurs frequently in the Indian languages, were to be placed one on the upper shift and the other on the lower one, the typist would lose speed not only as a result of the frequent use of the shift key but also on account of the heavy psychological strain put on his mind by the necessity of remembering two distinct characters on the same key. Consequently, the largeness of number of characters in Nagari does present a difficulty in the task of fitting them on the existing typewriter.

Another difficulty that has to be faced is the number of vowel marks, and the practice of putting them above, below, before or after a letter, as the case may be. Some of these

require the provision of dead keys in the Hindi Typewriter. But while this, by itself, may not appreciably interfere with speed and efficiency of the machine, it causes very great strain on the mind of the typist because he has first to type the vowel mark and then the letter, whereas in actual writing by hand the practice is just the reverse. This psychological strain fatigues the typist and reduces his efficiency with the consequent decrease in his speed.

In Nagari consonants are combined with one another to represent compound sounds. This is done by writing not the full outline of the consonants but only some part of them except the last. These may be termed as 'half letters', and a provision has to be made for them. Therefore, the number of the letters to be provided for on the Hindi Typewriter is considerably increased. Moreover these consonants are combined with others by writing the half consonant either above the full letter, or before it. The full consonant with which the half combines sometimes changes its form or even position. Such a complexity in the combination of letters creates a great difficulty for the designer of the Hindi Typewriter. Thus if half 'अ' is combined to 'अ' the latter is written below 'अ'. This means that dead keys have to be provided in the Hindi Typewriter for providing these conjunct consonants.

In our approach to this problem we have kept the following considerations in view :—

Firstly, the basic character of the script should not be radically altered in the solutions that we propose.

Secondly, we have aimed at securing uniformity as much as beauty in the characters to be provided on the keyboard of the Hindi Typewriter. We have, today, two faces of Nagari letters, one known as the Calcutta type and the other as the Bombay type. We preferred to include in our keyboard those faces of the characters which appeared to be more popularly used and beautiful in forms, whether they belonged to the Bombay or the Calcutta types.

Thirdly, as the Hindi Standard Typewriter is likely to be used in the offices of the State Governments also, it should meet the needs of the regional languages, some of which contain certain sounds for which there are no appropriate symbols in the Nagari script. This deficiency of Nagari should be removed if the Hindi Typewriter is to fulfil the demands of those regional languages which may prefer to use the Nagari script.

Fourthly, we have recognised that an essential quality of a typewriter should be the attainment of high speed. The psychological strain that is produced on the mind of the typist by any particular arrangement of letters has to be minimized.

Fifthly, we have kept in view the several considerations on which the positions of letters are fixed on the keyboard of a Typewriter. We may specifically state some of them. We caused to be calculated the frequency of letters in the Hindi—Hindustani. Thirty thousand words were examined for this purpose by 3 different groups at Delhi, Wardha and Allahabad, the result of this calculation is given in *Appendix G*. We also caused to be calculated the number of strokes that could be given per minute on any particular key. In addition, we considered the respective strength of fingers as well as their capacity to cooperate with one another.

Keeping in view the above considerations, we have put the half letters in the upper case, but on the same key on which the full is also given.

PART III

Conclusions and Recommendations

We may now proceed to state the conclusions arrived at by us. In the first place, the Hindi Standard Typewriter should not have more than 46 keys and the Hindi Portable Typewriter not more than 42 keys. We have no option but to fit the Devanagari script to the existing Standard Typewriters. It is internationally accepted that the Standard Typewriters should not have more than 46 keys. This is the utmost limit to which the touch-system of typing can be extended.

Secondly, the keyboard of the Hindi Typewriter should provide for the sounds of short 'ऋ' and short 'ॠ' which are found in the languages of the Deccan as well as in the Braj and Avadhi dialects of Hindi. The letter 'ॡ' which occurs in Marathi, Gujrati, Uriya, Rajasthani and the four South Indian languages, has also been provided.

We have also come to the conclusion that we should not accept the radical proposals for changes in the Devanagari script, which have been submitted to us and have been summarised in the *Appendix B* of this report.

Four changes have, however, been provided for. The first is the shape of the vowel mark for short ' i '. The practice so far has been to put it before the consonant with which it combines. But this is not in accordance with the order of pronunciation. It is not possible to put the existing shape of the mark after the consonant as it may lead to confusion. We, therefore, provide for the vowel mark in the form of ' ि ' falling after the consonant and not before it. The second change is in the form of the letter ' ख '. The form, in which it is written now is not free from confusion. It could be read as ' र व ' (rawa) instead of ' ख ' (kha). Opinion was divided as to the new form. Consequently we have given it the form ' ख ' that distinguishes it from a combination of ' र ' and ' व ' but which is still very similar to the old one. The third change is in the form of the vowel ' ऋ '. This will be formed by putting the vowel mark for ' ऋ ' (ँ) below ' अ ' as ' अृ '.

We disapprove of the use of ' ः ', although we have provided for it in the keyboard, because often it does not occupy its proper place in the order of pronunciation. We, therefore, recommend the use of ' र ' [with 'hal' sign] in place of the ' ः ' for which also we have made provision.

All these changes are the result of joint discussions and agreement between the members of this Committee and the Devanagari Script Reform Committee of the U. P. Government.

We wished to avoid the use of the dead key by putting the vowel mark not on or below the letters but after them, because the use of the dead keys involves an unusual way of typing, namely, typewriting the vowel marks first and then the letters. At present we have eliminated the lower vowel marks viz. ' ँ ' by putting them after the letters and not below them.

Therefore, our recommendations are as below :—

No. 1—The Standard Hindi Typewriter should have forty-six keys* in the maximum and the Portable Hindi Typewriter should have 42 keys in the minimum.

No. 2—The keyboard of the Standard Hindi Typewriter should have the 92 characters shown in the chart given in *Appendix C* to this report. The

*Later changed to 45. See pages 136 and 137.

Portable Typewriter should have 84 characters as shown in the chart given in *Appendix D₁*. The arrangement of these characters should be as shown in the charts and their forms as in the special charts given in *Appendices H. I. J. K.*

KAKA KALELKAR,
M. SATYA NARAYAN,
S. N. AGARWAL,
BABU RAM SAXENA,
ANAND KAUSHALYAYAN,

NEW DELHI: K. N. MISRA.
The 15th January, 1949. (Subject to a note of dissent)*.

*During the discussion Prof. Misra at no stage placed the points raised in this note before the Committee. The reason for this according to him, was that he had applied for a patent right for a keyboard of his own. The Committee, therefore, did not think it proper to append this note to this report as a note of dissent.

Section III—The Telegraphic Code

विद्युल्लिपि "Vidyullipi" or the Telegraphic Code for those of the Indian languages that can use the Nagari script, is not a difficult proposition. The sounds represented in the Nagari script are all scientifically arranged. A Telegraphic Code can easily be remembered and manipulated with ease if it takes full advantage of this scientific arrangement.

The Code for signalling and that for teleprinting are naturally different. In teleprinting each letter or sign must have the same number of units all throughout. The signalling Code uses the dot and the dash in permutations of 1, 2, 3, 4, and 5 units. We thus get in all 2 plus 4 plus 8 plus 16 plus 32 i.e. 62 signs in all. There is plenty of room, therefore, for accommodating Nagari vowel signs and consonants.

Conjunct consonants must, of course, be represented by the use of *Halant*.

The three important schemes that we have received, have all very wisely accepted the reformed system of writing vowels known as स्वरखड़ी Swarakhadi. ऋ, ॠ, ए, ॡ, ओ, ॢ. They have all recommended the use of *Halant* for representing conjunct consonants.

We would have very much liked to use the principle of frequency in assigning code signs to the letters and vowel signs of the Nagari alphabet but the Telegraphic Code is extremely limited in its resources. A dot and a dash makes up its whole repertory. Every assistance must be given to the signaller, and more than the signaller to the receiver, for remembering the signs. We have, therefore, made a very limited use of the principle of frequency and depended mainly on the scientific arrangement of the Nagari letters.

Thus short अ and other short and frequent vowel signs are made up of two units only. Most of the vowel signs (*matra*) have only three digit signs.

Unaspirate letters like क, च, ट, ठ, प, and ग, ज, ड, द, न, are represented by signs of four digits. The latter invariably end with a dash.

Aspirate letters, numerals and a few important service instructions have assigned to them signs of five digits. The heavy sounding *Mahaprana* letters, namely, ख, ख, ङ, ब, ङ and ष, झ, ञ, ण, न, have all five digits. They all, moreover, end with a dash.

Shri Devideen Trivedi has an ingenious method of reversing the signs for pairs of similar sounds. Sometimes he inverts one sign into another. We were tempted to make use of these devices in the scheme suggested by us, they are so useful in remembering the signs. But our arrangement shows the difference in the pairs by the last stroke which is better useful to the receiver. The subjoined is so arranged that the whole scheme explains itself. Provision is made here for short *ॐ* and short *ॐ* which are necessary for Southern languages. Special Urdu sounds also are provided for.

KAKA KALELKAR.

SRIMAN NARAYAN AGARWAL.

BABU RAM SAXENA.

NEW DELHI ;
The 15th July, 1948.

नागरी की विद्युल्लिपि

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APPENDIX A

SURVEY OF SHORTHAND SYSTEMS

Our analysis of the Pitman system has led us to form the following ideas about its pattern scheme of organisation :—

(1) It is divided into two sections one meant for the beginners and the other for the advanced students. But the second section is so interwoven with the first that it is difficult to say where the one ends and the other begins. Even then we can say that the first section consists of the basic script and grammar of the Shorthand system, while the second gives the special rules and script which an advanced student can use in order to increase his speed.

(2) It draws the basic script of the Shorthand system in such a way as to make it easily understood and remembered by anyone seeking to use it to represent the spoken words. It appears that these symbols have been determined by the consideration of maximum speed in writing. It has determined that these symbols should be simple and small so that they may be easily penned.

These requisites could be fulfilled by using simple geometrical straight and curved lines for preparing these symbols. It can be said with great truth that this idea of using geometrical lines to represent spoken sounds alone made possible the formulation of Shorthand systems. Pitman derives these lines from the following three figures :—

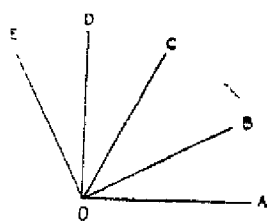


Fig. 1

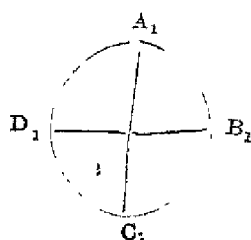


Fig. 2

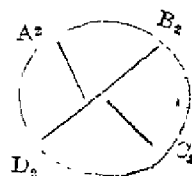


Fig. 3

From the above three figures it is clear that there can be thirteen symbols formed without any danger of confusion arising in their use. These thirteen symbols consist of five straight strokes and eight curved strokes. The five straight strokes are AO, BO, CO, DO, & EO, while the eight curved strokes are A₁ D₁, A₁ B₁, B₁ C₁, D₁ C₁ and A₂ D₂, A₂ B₂, B₂ C₂ and D₂ C₂.

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These basic signs of the Shorthand Script there are signs which are used by Pitman. These special signs indicate the addition of a vowel or a consonant represented by one of the basic signs of the script. There are six in number, a dot, a dash, a loop, and a tick.

These have been allotted to the basic human sounds in a special arrangement. This is the classification of a number of groups. These groups according to the following :

Explodents:—The consonants in pronouncing which the outgoing breath is forced in a sudden gust through a suddenly closed passage. क, च, ट, त, प

Continuants in uttering which “the outgoing stream of being expelled suddenly is allowed to escape through similar barriers partially closed.” फ, ब, द, भ, ज

Nasals which “are produced by closing the barriers in the mouth against the outgoing air so that it has to escape through the nose”. म, न, ण, ङ, ञ

‘Liquids’ which ‘flow into union with other consonants and thus make double consonants’. य, व, र

‘Aspirate’ which is a breathing upon a following consonant.



The *Explodents* consist of eight consonants and the *Continuants* consist of eight consonants. Moreover each of these are sub-divided into 4 sub-groups each sub-group of 2 consonants. “The articulations in these pairs are such that the sound is light in the first consonant of each pair and heavy in the second”. Thus these sixteen consonants form 8 similar pairs as shown below :—

B	} Explodents	F	—	V	} Continuants
D		TH	—	TH	
J		S	—	Z	
G		Sh	—	Zh	

Apart from these the Liquids, the nasals and the aspirate are as follows:—

M, N, NG	:	NASALS
L, R	:	LIQUIDS
W, Y	:	COALESCENTS
H	:	ASPIRATE

This classification of consonants makes it clear that the basic sounds according to Pitman system are the first sixteen consonants as arranged above. But the basic signs are only 13. This disparity between the number of signs and sounds makes the Pitman system to follow certain rules whereby it may be overcome. This leads us to the third feature of the system—its grammar.

(3) (a) The first rule of importance is the principle of thickening of the stroke. It is based on the fact that the second consonant in each of the pairs given above has a heavier sound than the first one. The lighter sound is represented by a light stroke and the heavier sound by a heavy or thick stroke of the same form. Thus  represents P and  represents B.

(b) On the basis of this rule the system assigns *straight strokes* to the *Explodents*. Only one straight stroke—OB in Fig. 1 is not used for this purpose. Each straight stroke is assigned to 1 pair of the Explodents. Thus EO for P pair, DO for T pair, CO for CH pair and AO for K pair, this order being determined by the place in the vocal organ from which these consonants are pronounced—and it is from the lips backward to the throat.

The continuants are assigned curved strokes—two being taken from the Fig. 2 that is D_1C_1 , and B_1C_1 , and two from Fig. 3 that is A_2D_2 , B_2C_2 , (c) the remaining strokes are allotted to the Nasals and the Liquids while the Coalescents and the aspirate are given some new and we should say special signs—for the first group hooked signs and for the latter looped signs


(4) Another striking feature of the system is its rules for vowel representation. The system assumes that the basic sounds of any language are the consonants and that the vowels are needed only to give accent and emphasis to the consonants. This accent and emphasis can be detected in any combination of consonants by any one familiar with the language even if the vowels indicating them are not specially shown in the combination. In other words the vowels that perform this function

may be dropped without any grave danger of any word being misread. On this assumption the system gives in the first section the number of vowels used in the English Language and the rules according to which they are to be shown in the Shorthand Script.

The system divides the vowels needed for the English Language into 2 broad groups—one of long vowels and the other consisting of light vowels corresponding to the long ones. Each group is further sub-divided into two sub-groups as follows:—

	Sub-group 1	Sub-group 2
Long vowels :	ah a e	aw o oo
Short vowels :	a e i	o u oo

Sub-group 1 of each class is represented by a dot, while sub-group 2 by a dash. Signs for the light vowels are light, while those for the long vowels are heavy. Thus the system seeks to represent all the twelve vowels by two signs alone. This miracle is achieved by the principle of position writing—which constitutes the distinguishing feature of the Pitman system.

Position writing for us has a double significance. In the first place it implies position marking. Thus the system describes how each line, straight or curved, has three positions—the first, the medial and the final as shown in this figure.  Vowel marks given in the first place represent the first vowel of each sub-group, the mark in the second place, the second vowel and the mark in the third place the third vowel. Moreover if the mark is on the left side or above the outline it would come before the consonant represented by the outline, and if it is to the right or below it would be pronounced after the consonant.

Secondly the system gives three positions in which the outline of a word can commence. "The first position is above the line, the second position is on the line, and the third position is through the line. The first sounded vowel in the word determines the position of the outline". When the first sounded vowel in a word is a first place vowel the outline is written in the first position. Similarly for a second place vowel it is written in the second position and for a third place vowel in the third position.

Diphthongs, which according to the system are four in number in the English Language that is I, OW, OI, U are represented by a special sign \vee , \wedge , \perp or \cap given in different places. The vowel following a diphthong is represented by a tick attached to the Diphthong sign.